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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,339

09/19/2007

Eric Lenglet

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05/28/2010

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EXAMINER

PO, MING CHEUNG

ART UNIT

PAPER NUMBER

1797

NOTIFICATION DATE

DELIVERY MODE

05/28/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

Office Action Summary	Application No. 10/591,339	Applicant(s) LENGLET ET AL.	
	Examiner MING CHEUNG PO	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This is the amendment filed on 02/12/2010 for application 10/591339.
2. Claims 1-20 are pending and have been fully considered.
3. The 35 U.S.C. 101 and the 35 U.S.C. 112 rejections of claims 1-16 have been withdrawn in light of applicant's amendment.

Claim Objections

4. Claim 19 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 already contains the limitation "evacuating said preredefined oil P_A to an oil port as an oil refinery feedstock intended to be refined in an oil refinery which is distinct and distant from the facility (I)".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1- 13, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over BROWN (US 4,885,080) in view of FRUMKIN et al. (U.S. 3,227,645).

Regarding claims 1, 4, 12, 13, 17 18, and 20, BROWN teaches a process for fractionating a heavy crude oil into at least 3 liquid fractions. The process is described

Art Unit: 1797

in lines 25 - 53 of column 3 to **vacuum or atmospheric fractionating** a heavy crude charge stock into 3 liquid fractions: a naphtha cut of C5 - 400°F, a distillate cut having an atmospheric pressure boiling range of **about 400°F to about 650°F** and a heavy residuum boiling at a temperature of **at least 650°F (fraction mainly comprising compounds with a boiling point of more than 343°C)**. The atmospheric distillate is taught in lines 59-66 of column 4 to be hydrodesulfurized (**pre-refined oil P_A**). The residuum (**oil P_B**) is fed to a hydrodemetallation unit where the residuum is fed to a hydrometallation unit where the residuum is demetallized and desulfurized over a suitable catalyst. The **(at least one desulphurization of at least a fraction of the oil P₁, said fraction mainly comprising compounds with a boiling point of more than 343°C while separately, reducing the quantity of vacuum residue include in the oil P₁, by segregation of a part of the whole vacuum residue.)**

BROWN does not seem to explicitly teach the content of the asphaltene in the atmospheric distillate.

However, FRUMKIN et al. teaches a process for metal removal and hydrocracking of high boiling oils. The process is elaborated on in lines 34-58 of column 3. Consitutents of the crude oil (**oil P₁**) boiling below about 650°F is removed by atmospheric distillation. Metal contaminants are concentrated in the reduced crude feed **(at least a fraction of the oil P₁, said fraction mainly compriusing compounds with a boiling point of more than 343°C)**. The crude feed is distilled to obtain vacuum gas oils, and left with a vacuum residuum containing asphaltic materials and where the metal contaminants are concentrated. FRUMKIN et al. teaches in lines 23-33 of column

Art Unit: 1797

3 the asphaltic materials are nondistillable.

It would be obvious to one of ordinary skill in the art that in the process that BROWNB teaches, the asphaltenes would be in the residuum and not in the distillate fraction.

BROWN teaches an example from lines 45 - 68 of column 8 and lines 1 - 68 of column 9. The examples use HONDA off-shore California **heavy crude oil**, with **a pour point of -10°F (oil P1)**. The crude oil is separated into a residuum, distillate fraction and naphtha fraction. The crude oil has **about 320 ppm of nickel and vanadium metal and 4.7 percent weight sulfur**. The distillate fraction is taught in lines 26-36 of column 9 and contains 2.9 weight percent sulfur. The distillate fraction is taught in lines 53-68 of column 9 to be commingled with hydrogen in the hydrodesulfurization reactor and the upgraded distillate stream contains 0.15 weight percent sulfur (**pre-refined oil P_A comprising compounds derived from the desulphurizing treatment, said pre-refined oil P_A being substantially free of asphaltenes, having a sulphur content that is reduced by at least 50%, and a content of vacuum residue with more than 1% by weight sulfur reduced by at least 15% with respect to the oil P1**).

BROWN does not seem to explicitly teach that the hydrogen for the hydrodesulfurization reactor comes from purified field gas.

However, BROWN does teach in lines 29-57 of column 5 that the hydrogen necessary may be produced from a hydrogen plant and may be derived from known methods involving steam or a procedure in which methane or liquefied petroleum gas or naphtha is reformed with steam to generate hydrogen.

Art Unit: 1797

It would be obvious to one of ordinary skill in the art to generate hydrogen from purified field gas since it is a known method in the art.

BROWN does not seem to explicitly teach where the treatment takes place and further evacuation of the pre-refined oil to an oil port.

However, it would have been an obvious matter of design choice to refine pre-refined oil P_A in an oil refinery distinct and distant from the site of the production of the pre-refined oil, since applicant has not disclosed that the location of the refinement solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with refining the pre-refined oil P_A in an oil refinery anywhere.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 2, BROWN does not seem to explicitly teach that the heavy residuum boiling at a temperature of at least 650°F comprises at least five cuts of light naphtha, heavy naphtha, kerosene, gas oil, vacuum gas oil, and/or vacuum residue.

However, FRUMKIN et al. teaches in lines 39-44 of column 3 that constituents of crude oil boiling above 650°F may be separated into vacuum gas oils and vacuum residue.

It would be obvious to one of ordinary skill in the art to obtain at least five cuts of vacuum gas oils and vacuum residue since applicant has not disclose that separation in to at least five cuts solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with separation into any number

Art Unit: 1797

of cuts.

Regarding claim 3, BROWN et al. teaches in lines 37-52 of column 9 that the effluent residuum from the desulfurization of the residuum contains 1.3 percent sulfur while the distillate contains 0.15 weight percent sulfur after desulfurization.

Regarding claim 5, BROWN teaches in lines 57-68 of column 6 and lines 1-61 of column 7 the use of a hydrometallation catalyst which may be supported on a non-promoted refractory inorganic oxide.

Regarding claims 6 and 7, BROWN teaches in lines 27-46 of column 4 the process entails atmospheric distilling a heavy crude charge to at least three liquid fractions, a atmospheric residuum boiling above 650°F, a distillate fraction boiling between about 400°F to 650°F and a naphtha fraction which has a boiling range from the boiling point of C5 hydrocarbons up to about 400°F. BROWN also teaches in lines 32-34 of column 4 that the reference method is applicable to vacuum distillation. BROWN teaches in lines 47-58 of column 4 that the residuum is desulfurized and in lines 59-66 of column 4 that the distillate fraction is also desulfurized. BROWN teaches in lines 7-23 of column 5 that after treatment, the residuum and the distillate fraction are recombined to produce a synthetic crude oil **(pre-refined oil P_A)**

Regarding claims 8 and 9, FRUMKIN et al. teaches in lines 51-58 of column 3 that the deasphalted vacuum gas oil may be hydrocracked to produced lighter products.

Regarding claim 10-11, BROWN teaches in lines 58-68 of column 6 and lines 1-61 of column 7 conditions for hydrometallation with a catalyst **(catalytic hydroconversion)**

Art Unit: 1797

Regarding claim 13, FRUMKIN et al. teaches in lines 44-46 of column 3 that residuum may be deasphalted to yield a deasphalted oil and asphaltic materials.

7. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over BROWN (US 4,885,080) in view of FRUMKIN et al. (U.S. 3,227,645) and WHORTON (U.S. 2,623,596).

The above discussion of BROWN is incorporated herein by reference.

BROWN does not seem to explicitly state injecting CO₂ produced from hydrogen production into an oil and/or gas field to assist in oil recovery.

However, WHORTON teaches in lines 1-8 of column 1 a method of injecting a gas comprising carbon dioxide into an oil reservoir to recover more oil.

It would be obvious to one of ordinary skill in the art to use the CO₂ produced from a hydrogen production process involving steam and injected the CO₂ into an oil and/or gas field.

The motivation to do so would be obvious to one of ordinary skill in the art. BROWN teaches a process for upgrading crude oil. One of ordinary skill would want to increase the amount of crude oil for upgrading.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

8. Applicant's arguments filed 02/12/2010 have been fully considered but they are not persuasive. Applicant argues that BROWN does not teach a pre-refined oil in which asphaltenes is substantially reduced. Examiner disagrees. Examiner has cited FRUMKIN et al as support. FRUMKIN teaches that asphaltic materials are nondistillable. Therefore, the asphaltenes remain in the residuum fraction and not in the distillate fraction.

Applicant further argues that BROWN does not teach separate oil P_A and P_b because BROWN recombines the fractions produced. Examiner disagrees. While BROWN does teach recombining the fractions, the distillate fraction can be sent for further refining. BROWN does not explicitly teach that the distillate fraction and the residuum fractions can not be used separately.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1797

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MING CHEUNG PO whose telephone number is (571)270-5552. The examiner can normally be reached on 9:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ming Cheung Po/
Patent Examiner

/Ellen M McAvoy/
Primary Examiner, Art Unit 1797